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ABSTRACT

The experimental research of two linguists studying the grammaticality judgments of second language learners, in which the researchers tried to find evidence that second language learners can discriminate between grammatical and ungrammatical sentences on principles of universal grammar, is examined and compared with the results of studies arguing that second language learners do not have access to the principles of universal grammar. Examples are drawn from the language of Dutch and German learners of English. It is concluded that second language learners asked to give linguistic judgments will use all available sources of linguistic knowledge, including native-language intuitions and second-language knowledge, and that ungrammaticality can be identified without having to recur to either negative evidence or universal grammar. (MSE)

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Linguistic Knowledge in Second Language Acquistion

Paper presented at the Ninth Second Language Research Forum, February 23-26, 1989, at the University of California at Los Angeles

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Currently there are two types of research on second language acquisition dealing with the possible relevance of UG.* One type of research investigates the "no negative evidence" problem in L2 learning, the other is inspired by the notion of parameter setting.

Both types of research originate from studies on L1 acquisition. In studies on the problem of no negative evidence it is investigated how language learners are able to find out that certain structures are incorrect solely on the basis of positive evidence. Studies on parameter setting deal with universal constraints on possible linguistic structures.

Research on the no negative evidence problem in second language acquisition focusses on grammaticality judgements of L2 learners. With respect to this, ungrammatical sentences constitute an area of research particularly interesting for testing claims as to the relevance of UG for second language learners. If it can be shown that L2 learners appear to be able to identify ungrammaticality in the L2 on the basis of positive evidence alone, L2 learners must have access to UG (see also Bley-Vroman et al. 1988).

Felix (1988) and White (1987) carried out experimental research on grammaticality judgements of L2 learners in which they tried to find evidence that L2 learners have access to linguistic knowledge that originates from UG. They both argue that L2 learners are able to discriminate between sentences that are grammatical and those that are ungrammatical along the lines of universal principles. They looked for cases where L2 learners were not able to make this distinction on the basis of L1 knowledge. That is, they looked for areas in L1 where, in conflict with universal principles, no distinction is made between grammatical and ungrammatical.

For example due to the so-called "that-trace effect" extraction is possible in (1) but not in *(2).

(1) Who do you think that Mary saw e ?
*(2) Who do you think that e saw Mary?

However, in Dutch extraction is possible both from subject and object position as in (3) and (4) (see White 1987).

(3) Wie zei Mary dat e het glas gebroken heeft?
('who did Mary say that the glass broke')
(4) Wat denk je dat Mary zal doen e?
('what do you think that Mary will do?)

Furthermore, in English parasitic gap constructions are possible as in (5) but not in *(6) (see Felix 1988).

(5) A person (that) they spoke to because they admired
*(6) A person (that) they spoke to because admired them

In German, however, both types are incorrect.

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UG stands for Universal Grammar

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According to White and Felix Dutch and German learners of English are able to identify which structures are correct and which are not. Since these learners cannot rely on their L1, White and Felix assume that they have access to the principles of UG that are of relevance here.

It may be questioned, however, if L2 learners have to have access to UG in order to be able to give correct grammaticality judgements on sentence types they have never been confronted with before. Although I also believe that in cases as in (1) and *(2) and (5) and *(6) negative input does not play an important role in the ability of second language learners to distinguish between sentences that are grammatical and sentences that are not, I do not think it is necessary to explain this ability on the basis of the availability of UG.

With respect to Subjacency Schachter (1988a, b) argued that L2 learners do not have access to UG. This is because here L2 learners with different L1s appear to be able to identify sentences as ungrammatical only to the extent to which this principle is instantiated in the L1. Had this principle been universally available, there should have been no difference between L2 learners relative to their L1.

If Schachter is right, which I think she is, why is it that Felix and White obtained the results they did?

The problem that we are confronted with here has to do with the conclusions that we are able to draw from grammaticality judgements. Grammaticality judgements are the outcome of a production task and therefore all kinds of linguistic knowledge may interact.

White (1987) studied the acquisition of the "that-trace effect" in examples such as in (7) and *(8).

(7) What do you suppose that Mary will do e ?
*(8) Who do you think that e saw Mary?

As is evident from (7) and *(8) in English extraction is possible from object position but not from subject position. In Dutch however, both extraction from subject and object position is possible. This is shown in (9) and (10).

(9) Wie zei Mary dat het glas gebroken heeft
('Who told Mary that broke the glass')
(10) Wat denk je dat Mary zal doen?
('What do you think that Mary will do?")

The situation in Dutch violates the principle that is assumed to be innately given.

In White's experiment Dutch learners of English were asked to give grammaticality judgements on the equivalents of (9) and (10) in English. Since the Dutch equivalents are both correct it is not possible for Dutch L2 learners of English to use their L1 in order to discriminate between subject and object extraction in English. I think it is correct to assume that in these cases negative input is of no relevance. In White's experiment subjects were asked to judge sentences such as in (7) and (8) relative to their equivalents without **that**. As far as the **that**-sentences are concerned object-extraction is clearly preferred over subject-extraction. See table 1.

extraction	preference		no preference
	+that	-that	
subject	5.9%	80.9%	11.3%
object	12.4%	60.5%	26.5%

Tabel 1: grammaticality judgements on sentences with extraction

Since L1-intuitions and negative input can be ruled out, these results can nicely be explained on the basis of principles of UG which are assumed to be responsible for the ungrammaticality of (8).

Although the reasoning and the conclusions of this experiment seem to be straightforward it is still possible to explain the results with respect to the L1. If we compare the sentences with subject extraction on the one hand, e.g. (11) and (12), and the sentences with object extraction, i.e. (13) and (14), on the other, it can be argued that transfer from (14) to (13) is easier than transfer from (12) to (11).

* (11) Who do you think that e broke the glass?
(12) Wie denk je dat het glas gebroken heeft?

(13) What do you suppose that Mary will do e ?
(14) Wat verwacht je dat Mary zal doen?

Since Dutch has SOV in embedded clauses, both subject and object extraction result into NP V structures. In English however, subject extraction leads to a V NP structure and object extraction to NP V. Hence, from a surface-structural point of view sentences with object extraction are identical in Dutch and English. In both languages they have NP V structure. Sentences with subject extraction are different. In Dutch they have NP V structure, in English V NP. With extraction, the V NP structure is the structure that L2 learners are unfamiliar with.

There is another reason why L2 learners of Dutch may judge sentences with subject-extraction to be less acceptable than sentences with object-extraction. This has to do with the fact that grammaticality judgements often involve gradual differences between more and less acceptable. Since both structures with subject and object extraction lead to an NP V order, this surface form is structurally ambiguous. Although semantics may often serve to disambiguate, between either subject or object extraction, the Dutch equivalents of (15) and (16) are ambiguous.

(15) Who did John think Mary saw?
(16) Who do you believe that Mary likes?

Psycholinguistic research has shown that with ambiguous sentences there is usually one interpretation that is the preferred one. Research for example done by Read et al. (1978) has shown that in ambiguous sentences such as

(17) Wie zit het meisje achterna?
('Who is chasing the girl?')
('Who is the girl chasing?')

Wie ('who') is usually interpreted as the subject, although intonation may have some influence. Noun-accent leads to a higher percentage of subject interpretations of **wie** ('who') than verb-accent.

With respect to ambiguous sentences such as (18), (19)

(18) Wie denkt Hans dat Mary gezien heeft?
('Who does John think that Mary saw?')
(19) Wie denkt Hans dat Karel gered heeft?
('Who does John think that Charles saved?')

I would hypothesize that the interpretation of these sentences with object extraction may be the preferred one. Hence, **Wie** ('who') will usually be interpreted with object function. The explanation for this has to do with the on-line left to right processing. Within the first NP V NP sequence **Hans** is subject and **Wie** ('who') will therefore be regarded as having object function. If **Mary** has subject function in the embedded clause, this preliminary assignment of syntactic function does not have to be reinterpreted. If, however, **Mary** has object function, a reinterpretation should be necessary. Hence, for sentences such as (18) and (19) there is a general expectation that the embedded NP V clause has object extraction.

The process of syntactic reanalysis that seems to be relevant in the interpretation of (18) and (19) can be related to the examples of garden path phenomena as they are discussed in Pritchett (1988). Pritchett points out that "syntactic reanalyses inconsistent with the initial assignments made in accord with θ-Attachment" only present pocessing difficulty if they interpret "a θ-marked constituent as outside of its current θ-domain" (Pritchett 1988, 544f.). This explains why misattachment and reanalysis in (20) is not problematic, whereas (21) leads to a garden path sentence.

(20) We know her contributions failed to come in
(21) I warned her mother loathed me

A similar situation occurs in (18) and (19). Initally **Wie** ('who') receives the patient θ-role from **denkt** 'thinks'. When the predicate **gezien heeft** ('saw') c.q. **gered heeft** ('saved') is processed, two θ-roles become available: Agent and Patient. If **Wie** is interpreted as Patient it remains within the Patient θ-domain of **think**. However, in order for **Wie** to become interpreted as Agent it has to be moved outside its current θ-domain. The "Theta Reanalysis Constraint" is violated: "Syntactic reanalysis which interprets a θ-marked constituent as outside of its current θ-domain is costly" (Pritchett 1988, 545).

In order to see whether native speakers of Dutch prefer the subject or object reading in structures as in (18) and (19), I carried out an experiment with 36 Dutch subjects, who were second-year students of English. These students were given the sentences as they are presented in Table 2 and Appendix I. In these sentences subjects had to make a choice between the subject and the object reading. For this they had to choose between two pronominal forms of the 3rd. pers. sg. masc.: **hij** ('he') vs. **hem** ('him'). As in English, both forms clearly distinguish between subject and object-function.

1.	Wie hoop je dat **hij/hem** benoemt? ('who do you hope that he/hem appoints') ... that he/him Vfin	87,5%
2.	Wie zeg je dat **hem/hij** zal bezoeken? ('Who do you say that he/him will see') ... that he/him Mod Vnf	81,2%
3.	Wie denk je dat **hij/hem** gezien heeft? ('Who do you think that he/him seen has') ... that he/him Past Part. Auxf	66,4%
4.	Wie verwacht je dat **hem/hij** een geschenk geeft? ('who do you expect that he/him a present gives') ... that he/him NP(object) Vfin	66,4%
5.	Wie is bezig ***hij/hem** te fotograferen? ('who is busy *he/him to take pictures from')	0,0%
6.	Wat veronderstel je dat ***hem/hij** leest? ('what do you suppose that *him/he reads')	99,2%

Table 2: Grammaticality judgement test. % subject reading = **hij** ('he'). 1 through 4 can be used with subject- or object extraction. 5 and 6 are fillers.

As can be seen from the data, there is a clear overall preference for the nominative **hij** ('he') in the sentence types with extraction, i.e. in 1 through 4. This means that the first reading that the subjects come up with is the one with object extraction. Hence, subject extraction though perfectly **grammatical** is less **available** to native speakers of Dutch.

Interestingly, there is also a difference between 1 and 2 on the one hand, and 3 and 4 on the other. Apparently the subject reading is more prominent in 1 and 2 than in 3 and 4. I think, this has to do with the positioning of the finite verb with respect to the pronominal form that has to be judged. Apparently, if the pronominal form immediately preceeds the finite verb a subject-finite verb reading is preferred. Hence, in addition to the Theta Reanalysis Constraint mentioned above anothor factor plays a role. Apparently **Wie** is more likely to remain in Patient 0-domain if the NP of the embedded clause occurs next to the finite verb and becomes interpreted as the Agent of the predicate.

This experiment leads to the following conclusion. It is wrong to assume that L2 learners using their L1 knowledge should necessarily identify L2 sentences to be correct or incorrect in agreement with what is **linguistically** correct and incorrect in their L1. For L2 learners to rely on their L1 does not mean that an L2 equivalent of a correct L1 structure should be regarded as correct in the L2. Sentences that need more processing to be judged grammatical in the L1, are felt to be less acceptable in the L2.

To conclude, it is too simple to argue for the availability of UG from grammaticality judgements on incorrect L2 sentences with a correct L1 equivalent. There are two reasons for why L2 learners may not accept incorrect L2 structures with a correct L1 equivalent. First, if the L2 sentences are structurally different from the L1 parallel, there may be less reason for L2 learners to accept these sentences on the basis of their L1. Second, the results of my experiment show that correctness in L1 is not an all or none question. There are structures that are perfectly correct but - for reasons of

processability - only after L1 speakers have given it some thought. In these cases L1 learners may be expected to judge the L2 equivalent as less correct.

Felix (1988) also tested intuitions about grammaticality contrasts in L2 English involving principles of Universal Grammar. As was the case in White's study, the equivalent utterances in the L1 did not show this type of grammaticality contrast for reasons of idiosyncratic properties. Hence, the L1 equivalents were either both correct or incorrect. The results of Felix' experiment are given in Figure 1. Here, I through VII indicates the types of test sentence that were used.

Here Figure 1

In one type of test sentence grammaticality contrasts due to **superiority effects** and **case filter effects** were involved. The L1 equivalents are both correct. The actual test items are given in I and VI.

I (a) I don't know who did what.
* (b) I don't know what who did.

(a) My mother doesn't remember what happened where
* (b) My mother doesn't remember where what happened

VI (a) John seems to love Mary
* (b) Mary seems John to love

(a) John seems to like Bavaria
* (b) Bavaria seems John to like

With these sentences L2 learners appear to be able to discriminate between the correct and incorrect alternative in L2 English. Since both alternatives are correct in the L1, Felix assumes that transfer has been controlled for. However, I would argue that there is a markedness relation in German between the equivalents of (a) and *(b) such that the German *(b)-version is marked and (a) unmarked. Research on both idiomatic and syntactic constructions (see Jordens and Kellerman 1981)[1] has shown that L2 learners are less willing to transfer those constructions that are intuitively seen as marked in the L1. Therefore, *(b) should be regarded less grammatical than (a). There is another reason for L2 learners to regard *(b) as less acceptable than (a). From the input L2 learners must have been able to generalize quite early that subjects in English typically occur in sentence-initial position. This generalization allows them to regard the *(b) sentences as less likely to be correct in English.

In his experiment Felix also used sentences with L1 equivalents that were both incorrect. This being another possibility to rule out L1 transfer effects. The test sentences include **parasitic gap constructions** (II), **exceptional case marking** (III), **that-trace effects** (IV), **subject condition** (V), **specified subject** (VII).

II (a) A person that they spoke to because they admired
* (b) A person that they spoke to because admired them

(a) A person they spoke to because they admired
* (b) A person they spoke to because admired them

III (a) John was easy for Smith to persuade to come to the party
* (b) John was easy for Smith to expect to come to the party

(a) Bill is difficult for John to persuade to quit the job
* (b) Bill is difficult for John to expect to quit the job

IV (a) Who do you believe that John gave a book to?
* (b) Who do you believe that will come?

(a) Who does John believe that he saw?
* (b) Who does John believe that saw him?

V (a) Which piano is it fun to play?
* (b) Which piano is to play fun?

(a) Which girl is it a pleasure to love?
* (b) Which girl is to love a pleasure?

VII (a) Who did the man see pictures of?
* (b) Who did the man see John's pictures of?

(a) Who did he hear stories about?
* (b) Who did he hear John's stories about?

The results show that L2 learners are able to discriminate between the correct and the incorrect L2 equivalent. Here too, however, I think, transfer from L1 German may explain the difference between the (a) and *(b) sentences. It is certainly true that the litteral equivalents of both the (a) and *(b) sentences in II, III, IV, V and VII are incorrect in German, but it is also the case that there are constructions in German similar to these in which the (a)-type is correct and the (b)-type incorrect. See II', III', IV', V'and VII'.

II' (a) Kein Tor. Der Torwart wehrt ab
('No goal. Goalkeeper saves again')
* (b) Kein Tor. Wehrt den Ball ab
('No goal. Saves the ball')

III' (a) Hans war leicht zu Überzeugen
(John was easy to persuade')
* (b) Hans war leicht zu erwarten
(John was easy to expect')

IV' (a) Wen glaubst du, daß er gesehen hat?
('Who do you believe that he saw?')
* (b) Wer glaubst du, daß kommen wird?
('Who do you believe that will come?')

V' (a) Das Klavier macht Spaß darauf zu spielen
('The piano is fun to play on')
* (b) Das Klavier macht darauf zu spielen Spaß
('The piano is to play on fun')

VII' (a) Wessen Bilder hat er gesehen?
('Whose pictures did he see?')
* (b) Von wem hat der Mann Hans' Bilder gesehen?
('Of whom did the man see Johns pictures?')

To conclude, L2 learners who are asked to give grammaticality judgements will use all sources of linguistic knowledge that they have access to. First, they have their L1 intuitions. These may be influenced by intuitions on degree of markedness (as in I and VI) and by L1 knowledge of constructions that are similar to the ones that are tested (as in II', III', IV', V', VII'). Second, L2 knowledge will be used whenever possible. L2 sentences will be accepted more easily if L2 learners can relate them to similar constructions they already know (as in Ia, VIa). Finally, suppose one might come up with unknown L2 structures that have no associations whatsoever with L1 constructions. If L2 learners have never been heard them before it is not at all clear that these constructions should be judged as correct. On the basis of their L2 knowledge experienced learners may apply a strategy according to which they regard as incorrect what has never occurred in the input. Rejection therefore, is due the well known operating principle: unknown, unloved.

Hence, grammaticality judgements can be based on all kinds of L1-linguistic knowledge and knowledge with respect to what is correct in the L2. If we take this into account it can be argued that - at least with respect to the phenomena discussed here - ungrammaticality can be identified without having to recur to either negative evidence or UG.

Note

1. In Jordens & Kellerman (1981) the concept "markedness" was extended to other linguistic material than idiomatic expressions. As marked material we also used 1. prepositions governed by verbs (**vertrouwen op** 'to trust sb.', **zich abonneren op** 'to have a subscription to'), 2. syntactic constructions with marked surface cases (**deze pen schrijft prima** 'this pen writes well', **dit boek leest als een roman** 'this book reads like a novel'), 3. non-finite constructions with subjectraising (**deze koffer is onhandig te dragen** 'this case is awkward to carry', **de opdracht was moeilijk uit te voeren** 'this order was difficult to carry out'), 4. syntactic constructions with dependent infinitive constructions (**hij beweert het te weten** 'he claims to know it', **hij zegt het te weten** 'he says hat he knows it'.

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Appendix I

Grammaticality judgement test: test sentences

1. that he/him Past Part. Auxf
   'Who do you think that he/him seen has'

   Wie denk je dat hij/hem gezien heeft?
   Wie vermoed je dat hij/hem gered heeft?
   Wie veronderstel je dat hij/hem geslagen heeft?
   Wie meen je dat hij/hem gefeliciteerd heeft?
   Wie zeg je dat hij/hem beledigd heeft?
   Wie vermoed je dat hij/hem gevraagd heeft?
   Wie denk je dat hij/hem toegesproken heeft?
   Wie ben je bang dat hij/hem geholpen heeft?
   Wie hoop je dat hij/hem betaald heeft?
   Wie meen je dat hij/hem opgesteld heeft?

2. that he/him Mod Vnf
   'Who do you say that he/him will see'

   Wie zeg je dat hij hem/hij zal bezoeken?
   Wie geloof je dat hem/hij zal uitkiezen?
   Wie hoop je dat hem/hij zal verslaan?
   Wie beweer je dat hem/hij zal overtuigen?
   Wie denk je dat hem/hij zal afluisteren?
   Wie meen je dat hem/hij zal bellen?
   Wie veronderstel je dat hem/hij zal achtervolgen?
   Wie geloof je dat hem/hij zal meenemen?
   Wie verwacht je dat hem/hij zal achternazitten?
   Wie vermoed je dat hij/hem zal groeten?

3. that he/him Vfin
   'who do you hope that he/hem appoints'

   Wie hoop je dat hij/hem benoemt?
   Wie meen je dat hem/hij beloont?
   Wie denk je dat hij/hem roept?
   Wie vermoed je dat hij/hem arresteert?
   Wie veronderstel je dat hij/hem dwingt?
   Wie ben je bang dat hij/hem geneest?
   Wie hoop je dat hij/hem vindt?
   Wie beweer je dat hij/hem verdedigt?
   Wie denk je dat hij/hem overtreft?
   Wie ben je bang dat hij/hem opzoekt?

4. that he/him NP(object) Vfin
   'who do you expect that he/him a present gives'

   Wie verwacht je dat hem/hij een geschenk geeft?
   Wie ben je bang dat hij/hem een bericht stuurt?
   Wie verwacht je dat hij/hem een brief overhandigt?
   Wie geloof je dat hem/hij een boek zendt?
   Wie verwacht je dat hem/hij de overwinning afneemt?
   Wie beweer je dat hem/hij een baan belooft?
   Wie verwacht je dat hem/hij een verzoek weigert?
   Wie meen je dat hem/hij koopwaar aanbeveelt?
   Wie zeg je dat hem/hij een geheim vertelt?
   Wie geloof je dat hem/hij uitstel toestaat?

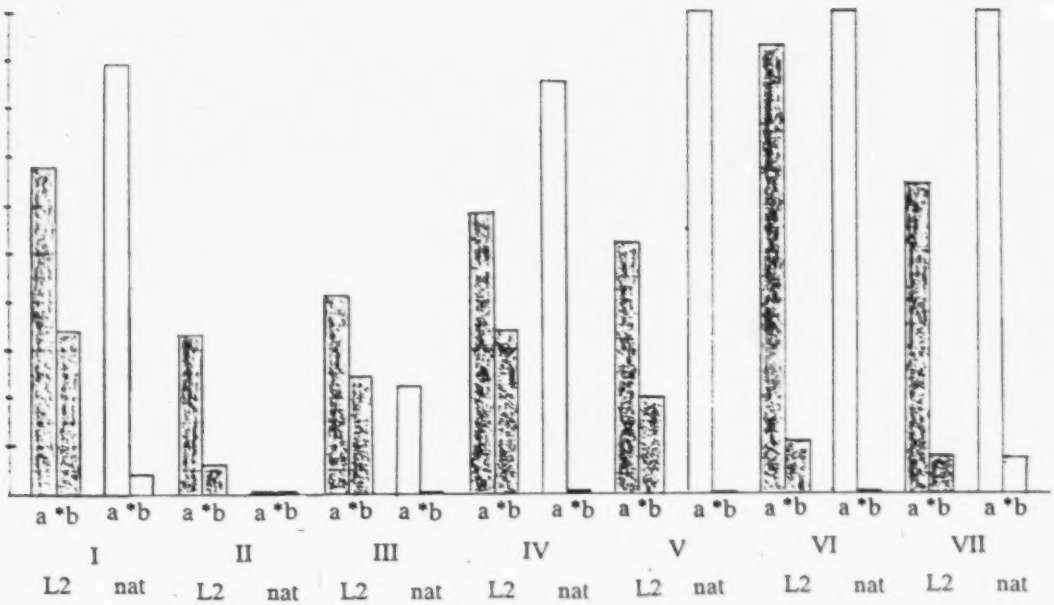

Figure 1: Results of Felix' experiment on grammaticality judgements: % grammatical. L2 learners (=L2) and native speakers (=nat)